WHAT IS CLAIMED IS

1. A method of manufacturing a semiconductor device comprising the steps of:

forming an interconnection on a semiconductor substrate having a semiconductor element formed thereon;

forming a passivation film on the semiconductor substrate including the interconnection;

forming a polyimide film, which is served as a buffer coating film, on the passivation film;

patterning the polyimide film;

etching the passivation film while the patterned polyimide film is taken as a mask;

removing, through ashing process, a hardened layer formed on the surface of the polyimide film as a result of said step of etching; and

curing the semiconductor substrate after ashing process so as to transform the polyimide film into imide.

2. The method of manufacturing a semiconductor device according to claim 1, wherein the polyimide film is formed by means of applying varnish which is formed by dissolving into an organic solvent polyamic acid serving as a precursor of polyimide.

3. The method of manufacturing a semiconductor device according to claim 1, wherein the polyimide film is a photosensitive polyimide film.

4. The method of manufacturing a semiconductor device according to claim 1, wherein in said step of removing, ashing process is effected through use of oxygen plasma.

5. The method of manufacturing a semiconductor device according to claim 1, wherein in said step of removing, ashing process is effected under conditions that the polyimide film is removed by 0.1 to several

micrometers.

6. The method of manufacturing a semiconductor device according to claim 1, wherein said step of curing is effected at 300°C to 450°C for 0.1 to several hours.